From the preceding tables it will be seen that the statement in my earlier paper (1906) based on the data for 1895–1905 was true. But this statement can not be repeated for the series 1906–10. The statement made in 1906 is:

> If series of 1,000 really reveal the variation conditions of the color pattern in the species in these different years (and our check lots show that they do) it is apparent from these statistics that *Diabrotica soror*, in this particular locality, has in ten years changed from a form in which one pattern type was the mode to one in which another is the mode. And this change has been gradual and cumulative; not made by a mutation or by discontinuous variation, *i. e.*, discontinuous evolution. The two modes or predominant types of pattern are connected to-day as they were ten years ago by all degrees of gradations; the variation, that is, is typically continuous or "Darwinian" in type.

Since 1906 this change from all-spots-free to middle-spots-fused has not proceeded nor even maintained itself. In 1908, 1909 and 1910 the lots studied from the campus flowers have all shown a predominance of the all-spots-free type. That is, the mode has swung back to the 1895 condition, or we may say, the species type. In the light of this fact, and in the suggestive light of the conditions presented by the lots taken from the Baccharis two miles away from the campus flowers and by the lots taken at Santa Rosa and San Jose in 1902 and 1906, it seems obvious that my case of determinate variation resolves itself into a case of fluctuational variation determined in one direction, then in another, in some way by a probably varying environment (using the word in a broad sense to include varying temperature, humidity, food supply, etc., during larval and pupal life of the beetles). There is no indication just what influence it is during immature life that is modifying the imaginal color pattern in this very definite and wholly unadaptive way, but some such influence must be behind the variation. It is certainly no inherent modifying principle working toward a purposeful or even purposeless goal, because it does not work consistently. And yet it is no such simple modification of a total color tone by low temperature or high humidity as I have been able to produce experimentally in certain insects of incomplete metamorphosis, *e. g., Murgantia histrionica,* the harlequin cabbage bug. It is a variation determined in certain alternating directions by a changing environment, by extrinsic influences working non-adaptively and unreasonably—may I say?—that is, producing changes that are not such as our knowledge—lamentably incomplete, to be sure—of the relation of varying food, temperature, humidity, light intensity, etc., to insect colors, enables us to prophesy.

The beetle still presents to me, therefore, an enduring interest even if it be not behaving in the way suggested by my questioning use in 1906 of the phrase "determinate variation."

Vernon L. Kellogg
Stanford University, Cal.

## *Societies and Academies*

### The Biological Society of Washington

The 474th regular meeting of the society was held in the hall of the Cosmos Club on November 12, 1910, with President T. S. Palmer in the chair and a good attendance of members.

Under the heading "brief notes," Dr. Barton W. Evermann reported continued success in keeping the two fur seals from the Pribilof Islands, which were received at the Bureau of Fisheries last spring. He reported also that ten more seals had been brought from the north on the revenue cutter *Bear* and landed safely at Seattle. Of these seven are now feeding well and the other three less satisfactorily. It is intended to distribute the ten as follows: two to Golden Gate Park, San Francisco; two to the New York Aquarium; four to the National Zoological Park, Washington, D. C.; and two will be left at Seattle, if suitable accommodations for them can be provided.

The following communications were presented:

*A New Jaguar Record for Texas:* Vernon Bailey.

The present record is of a large specimen of the jaguar killed last spring in central Texas, near London, Kimble County, not far from the Llano River. Mr. Bailey showed a lantern slide photograph of the dead animal and also a map showing localities of the principal records for this animal within the United States. The jaguar formerly

ranged over the greater part of the territory south of the Red River, but for many years was regarded as extinct throughout the interior of Texas.

*Forage Plant Investigations in Mexico:* A. S. HITCHCOCK.

During the summer of 1910, Mr. Hitchcock, systematic agrostologist of the U. S. Department of Agriculture, was engaged in studying and collecting the grasses of Mexico and southern Texas. Except for about three weeks spent at San Antonio, Corpus Christi, Brownsville and Sarita, Texas, the time was spent in the republic of Mexico. All the states north of the Isthmus of Tehuantepec were visited, except Sonora (visited previously by the speaker), Sinaloa and the Territory of Tepic. Collections were made at the following places: Monterey, Saltillo, San Luis Potosi, Cardenas, Tampico, Querétero, various localities in the Federal District, Popo Park, Mt. Popocatepetl, Oaxaca, Tomellin, Tehuacán, Esperanza, Chalchicomula, Mt. Orizaba, City of Orizaba, Córdoba, Vera Cruz, Jalapa, San Marcos, Pachuca, Balsas, Cuernavaca, Toluca, Acámbaro, Uruápan, Manzanillo, Colima, Zapotlán, Nevada Peak, Guadalajara, Irapuato, Aguas Calientes, Zacatecas, Torreón, Durango, Chihuahua, Sanchez and Miñuca.

Mr. Hitchcock was accompanied by his son, Frank H. Hitchcock, as assistant, with whose help he was enabled to collect about 20,000 specimens of grasses, of 2,703 numbers. An effort was made to visit the type localities, especially of the earlier collectors. In this way several species were found, which because of insufficient information, have been considered doubtful. Other species supposed to be rare or local were found to extend over a wide range. It appears to be a fact, however, that many species are much more localized than is commonly the case in the United States. The interior of Mexico consists of a plateau, mostly 5,000 to 8,000 feet in altitude, with mountain ranges of higher elevation, the snow-capped peaks of Orizaba and Popocatepetl rising to the height of about 17,500 feet. The northern part of the plateau is arid, the annual rainfall being less than 10 inches. The precipitation increases toward the south and in the Sierra Madre Mountains, and reaches a maximum of over 80 inches in the southern part of the state of Vera Cruz. The rainy season usually extends through July, August and September.

The grasses of the plateau region are smaller than those of southern Arizona, many species being common to both. *Muhlenbergia, Stipa* and *Bouteloua* are dominant genera. Along the eastern coast is a strip of lowland, 50 to 100 miles wide, in which the grasses are poorly represented. It is at the juncture of the plateau and the lowland that the grasses are found in greatest profusion. From 1,000 to 4,000 feet altitude, along the sides of the *barancas* (steep and deep valleys, or cañons) occur numerous species of *Panicum, Paspalum* and other interesting tropical genera.

Of the localities visited, Cardenas, Jalapa, Orizaba and Cordoba are situated on the eastern slope of the plateau, and Colima and Zapotlán on the western slope. At the last two places the genus *Tripsacum* is especially noticeable, certain species closely resembling in habit our cultivated Indian corn, or maize.

*Pear Thrips Investigations in California:* A. L. QUAINTANCE.

Mr. Quaintance detailed the present status of the investigations by the Bureau of Entomology of the so-called pear thrips (*Euthrips pyri* Daniel) in California, illustrating his remarks with lantern slides. It was stated that the insect is now generally present in the deciduous fruit growing areas of Santa Clara, Contra Costa, Alameda and Solano counties, with points of serious infestation in Sacramento, Yolo, Napa and Sonoma counties. According to estimates prepared by Messrs. S. W. Foster and P. R. Jones, the bureau's agents in immediate charge of the work, the losses to the fruit growing industry from this insect to date totalled about $3,500,000, with probabilities for an annual loss, due to its continued spread and increase in destructiveness of one million dollars.

Much progress was reported in control measures. It had been determined that in the lighter soils a great deal of good may be accomplished by deep plowing and cross plowing of orchards in the fall, at which time the insect is in the helpless pupal condition and easily destroyed. In the Santa Clara Valley careful records extending over two seasons have shown that about 70 per cent. of the insects may be killed in this way. In other types of soil in which the insects are able to penetrate deeper, in some instances to a depth of 24 to 28 inches, but little benefit was found to result from this work.

It was pointed out that decidedly a most effective method of control of pear thrips was thorough spraying of trees with a combined dis-

tillate oil and nicotine spray in the spring just as the buds were swelling and before the bud scales had separated sufficiently to allow the entrance of the minute insects. A thorough drenching application of trees at this time, followed by a second treatment just before the blossoms opened, resulted in the destruction of a very high percentage of the insects in orchards and insured ordinarily a good crop of fruit. However, in case where these two sprayings were not properly accomplished, a treatment against the larvæ after the falling of the blossoms was advised, thus protecting the foliage from injury and preventing scabbing of prunes, which in the absence of treatment is often extremely prevalent, greatly lowering the grade of the product.

Full confidence was expressed in the outcome of the work now in progress, but one of the greatest difficulties experienced was stated to be necessary cooperation of individual growers in some sections.

The first communication was discussed by several members.

D. E. Lantz,
*Recording Secretary*

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

The 449th regular meeting of the society was neld in the hall of the Public Library, November 15, 1910, 8 P.M., with the president, Dr. J. W. Fewkes, in the chair.

The first paper of the evening was on "New England Life in Old Almanacs," by Mr. George R. Stetson. The earliest almanac extant from New England is dated 1645. The almanac literature forms quite an extensive library. In the Astor Library there are recorded about 2,000 titles. Besides the calendarium proper, the almanacs contain information and give advice on all the relations and conditions of life. Much attention is given in them to the movements of the celestial bodies and their phenomena, especially to comets. In fact, the old almanacs, like many of their later successors, were small cyclopedias, and thus shed much instructive and interesting light on the life of the times in all its relations and phases.

Dr. Ales Hrdlicka followed with an account of the exploration of "An Ancient Sepulcher at San Juan Teotihuacan, with Anthropological Notes on the Teotihuacan People." San Juan, which is about forty miles distant from the City of Mexico, was the sacred city of what was perhaps the first civilized race that inhabited Mexico. The site is marked by two stepped pyramids, called the "pyramid of the sun" and the "pyramid of the moon" respectively. They are faced by a court of monuments, which are assumed to have been temples, called the "street of the dead." The grave opened by Dr. Hrdlicka was situated about 250 yards southeast of the E.S.E. corner of the pyramid of the sun. In this grave, which was shielded by two cement floors (aside from layers of earth and rubble), were found two skeletons, one of a man about forty-five years of age, the other of a woman of over fifty years of age, buried in the classic contracted fetus-in-utero position. Both bodies must have been interred simultaneously, for there was no displacement of any of the bones. They lay parallel, with head to the east. Near the skeletons were found earthenware dishes, fragments of mother-of-pearl rings, beautiful obsidian knives of the long, slightly curved, flake variety, a shell disk and a bowl provided with three short legs. The bones show no traces of disease or any injuries in life, but both the crania are artificially deformed; this is specially true of the female. The deformation is of the fronto-occipital variety. But the deformation is not so great as to prevent the recognition of the original type of the crania—they were both brachycephalic. The stature of the two individuals, as far as can be judged from the bones, was rather above medium, as compared with that of the present native population in the valley, and the same may be said of the strength of the bones.

Dr. Hrdlicka called attention to the following points of interest connected with the find: (1) the peculiar construction of the grave; (2) the fact that here were buried together an adult man and an adult woman suggests a sacrifice of the woman on the occasion of the death of her husband; (3) here is for the first time found what looks as clear evidence that the artificial head-deformation of the flathead type was actually practised by at least a part of the ancient inhabitants of these regions, and (4) it is evident that the ancient builders of Teotihuacan, or at least an important part of them, were of the brachycephalic type.

The two skeletons, as well as the objects found with them, are deposited at the San Juan Museum.

The paper was discussed by Messrs. Lamb, Fewkes, Hewitt and Gronberger.

J. M. Casanowicz,
*Secretary*